CBRNE-IP Study Background, Authority, and Guidance

Program Decision Memorandum III (Combating WMD) reduced funding for the Guardian Installation Protection Program (IPP) by $535M in procurement funds and tasked the Under Secretary of Defense, Acquisitions, Technology and Logistics (USD(AT&L)), in coordination with the Chairman of the Joint Chiefs of Staff (CJCS), to develop and submit a revised plan (hereafter known as the "Study") for chemical, biological, radiological, nuclear, and high-yield explosives (CBRNE) installation protection (IP) to the Deputy Secretary of Defense (DEPSECDEF) no later than June 30, 2006. The Terms of Reference (TOR) guided the Study and mandated the creation of a prioritized installation list; the identification of capability packages to address CBRNE IP gaps; the inclusion of a tiered approach to execution, and the provision of funding recommendations. Additionally, the TOR directed that the Study focus on ensuring that mission assurance requirements are satisfied using both military and civilian assets, and that a means of utilizing military assets for civilian consequence management is determined. The Assistant to the Secretary of Defense, Nuclear and Chemical and Biological (ATSD(NCB)) provided further guidance to the Study in a March 15, 2006 memorandum, which stated, "The Installation/Force Protection Program will provide a critical baseline capability of first responder, incident management, and warning notification to bases within defined funding constraints. If additional resources are required in FY08-13 to execute the restructured program, an overguidance issue (OGI) will be prepared and submitted…"

ATSD(NCB) and the Joint Requirements Office (JRO) jointly managed the Study. The Study adopted an unbiased, collaborative, and transparent approach that included assembling a team of individuals and organizations experienced and knowledgeable in a variety of areas related to IP. This team was referred to as the Core Working Group (CWG) and consisted of personnel from the Office of the Secretary of Defense (OSD), the Military Services, combatant commands (COCOMs) and Department of Defense (DoD) Agencies to provide critical information, advice on Study direction and feedback on program issues. Additionally, the Force Protection Functional Capabilities Board (FCB) reviewed Study products and supported the Study effort by ensuring appropriate organizations were engaged throughout the process. Finally, the Joint Capabilities Board (JCB) met to review and forward the Study recommendations.

The TOR directed the use of a Joint Capabilities and Integration Development System (JCIDS) aligned analytical framework, which enabled the Study to approach CBRNE IP in three distinct phases within a doctrine, organization, training, materiel, leadership, policy, facilities (DOTMLPF) construct. The resulting CBRNE IP capabilities based assessment (CBA) is comprised of three products: the Area Analysis (AA), Needs Analysis (NA), and Solutions Analysis (SA). The analyses are aligned with federal policy and programs related to all-hazards operations.

The AA identified tasks required to perform CBRNE IP operations. The CBRNE IP tasks were initially derived from the Universal Joint Task List (UJTL), National Incident Management Systems (NIMS), National Planning Scenarios (NPS), National Response Plan (NRP), national strategies, Joint operations concepts (JOpsCs), Joint operating concepts (JOCs), Joint functional concepts (JFCs), Joint integrating concepts (JICs), concepts of operation (CONOPS), and other Joint and Service doctrine. Department of Defense Instruction (DoDI) 2000.18 was used to draw parallel levels of capability but was not the sole guide used to discern IP requirements.

During the NA, the Study analyzed and built on the tasks identified in the AA. Specifically, the Study identified and assessed Joint Force (JF) capabilities that could be employed to perform tasks to designated standards while operating under various (physical, military, and civil) conditions. Additionally, the Study identified capability gaps by reviewing previous analyses and soliciting COCOM, Service, and subject matter expert (SME) input. These included civilian and military interoperability gaps, as well as intra-DoD interoperability gaps. The Study recommended solutions to the identified gaps during the SA. The Study then participated in modeling and simulation exercises to validate the findings of the CWG.

CBRNE IP Mission Space

The Study defined CBRNE IP as measures taken to anticipate, recognize, warn, evaluate, control, respond to, and recover from CBRNE events in order to preserve life, prevent human suffering, mitigate an incident, protect critical assets, and maintain critical missions. The mission space was further characterized and related to other associated programs. The Study defined mission space by sets of capabilities, both on and off an installation that fall within the purview of CBRNE IP (see Figure 1). The first set of capabilities addressed by this program resides on an installation, specifically: preparation (organization, planning, and training); detection and assessment; warning and reporting; initial response (mission continuity, communication, and decontamination); force health protection; and life-cycle sustainment. The mission space also includes capabilities that reside within the purview of the program but are off the installation such as: integration with local responders; integration with nearby military bases; and other military and federal support. In addition, the Study identified other DoD programs (anti-terrorism; physical security; physical infrastructure protection; installation; defense support to civil authorities as it applies to disaster support; and defense against high-yield explosives and nuclear weapons) as having relevance to IP but that fall outside the parameters of the program. The Study recognized, however, that a successful IP program depends on knowledge of and coordination with these programs. Finally, the Study determined that protection for food, water, mail, cyberspace, agriculture, and the defense industrial base, as well as active defense measures and reconstitution, were beyond the scope of the IP program. The Study did not consider high-yield explosives as a stand-alone threat relevant to this Study, but presumed them to be the dispersal mechanism for several chemical and radiological threat agents. Thus, the Study's effort avoids duplication of work already underway in the AT community.

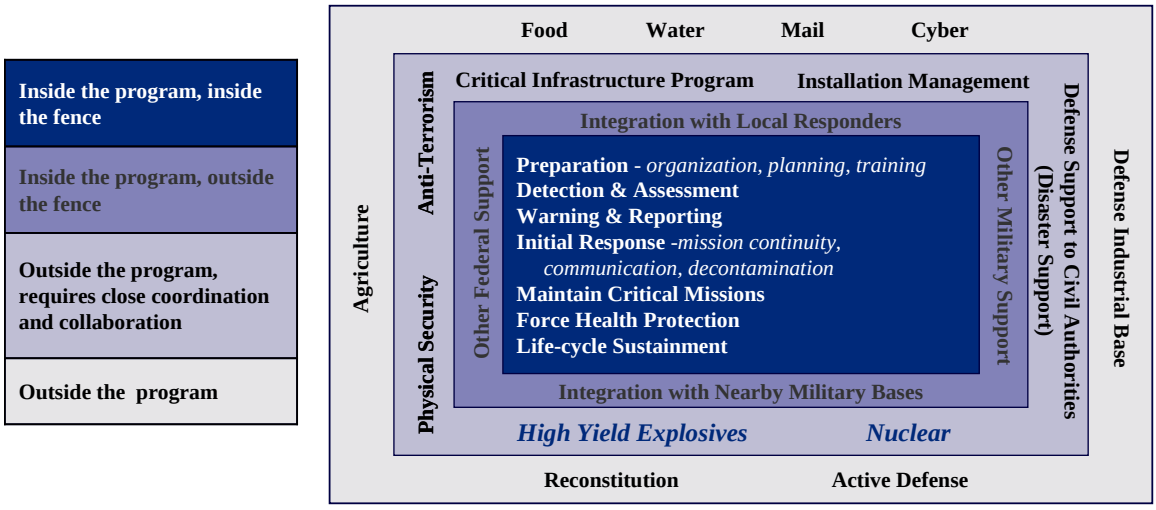

Figure 1: CBRNE IP Mission Space

CBRNE IP must fit into the framework of an installation's all-hazards response capability in order to be effective since installations generally do not have the resources to support a separate, independent program exclusively for CBRNE events. Additionally, the ability to receive emergency support from and provide mutual aid to the local community depends on common response and incident management protocols developed for all-hazards. Considering an all-hazards approach encourages interoperability, enables the effective use of resources, and protects critical operations, personnel, assets, and the environment during likely emergency events. An all-hazards approach to CBRNE IP also facilitates the coordination of programs and resources resulting in rapid, effective response and hazard mitigation.

Materiel Solutions

Recommendation: DoD should adopt a tiered approach to CBRNE IP.

The CBRNE IP TOR called for the inclusion of a tiered approach to CBRNE IP execution. This approach is flexible enough to accommodate the needs of specific installations, while standardizing major system elements to provide cost effective solutions. As stated earlier, the Baseline Tier consists of non-materiel solutions. Tiers 1 and 2 consist of materiel solutions. Each tier builds on the capabilities of lower tiers.

Modeling and simulation exercises were conducted to assist in defining and validating the tiered capability packages. Specifically, nine families of systems were evaluated in order to determine which should be included in each of the recommended tiered solutions. These nine families of systems were grouped into tiers and subsequently formed the basis of the three-tier concept.

These groups of capabilities were run against threat scenarios within the models to determine the combination of components providing the best protection. The scenarios included a non-persistent chemical agent (sarin), a persistent chemical agent (mustard), a TIC agent (chlorine), a biological agent (*Bacillus anthracis*), radiological materiel (Cs-137), and a nuclear device. The modeling and simulation activities provided a basis for the creation of three tiers: Baseline, Tier 1 and Tier 2. The analysis helped determine that:

- Training, planning, and exercises reduced fatalities and critical timelines for key threats
- Training, planning, exercises, First Responder Equipment, and Mass Warning and Notification System capabilities provided improvement in critical timelines
- Critical mission Individual Protective Equipment (IPE) and medical countermeasures did not enhance critical mission assurance
- Critical mission escape hoods without detection and warning provided little benefit for saving critical mission lives
- Mass notification reduced critical timelines in all scenarios
- Radiological threat resulted in minimal casualties

The first materiel capability package, identified as Tier 1, is focused on installation emergency responders, first responders, and first receivers and includes emergency response equipment, decision support tools (DST), and mass notification and warning capabilities. Mass notification and DST's are essential to optimizing the response during the first few critical minutes of a CBRNE event. The Tier 1 package is similar to the

package currently being fielded by JPMG referred to as IPP-Lite. The Tier 1 capability package includes all Baseline Tier capabilities and adds:

- Personal protective equipment for emergency responders and first receivers
- Portable radiological, chemical, and biological detection equipment
- Personal dosimeters
- Hazard marking and controlling equipment
- Medical countermeasures for emergency responders, first receivers, and first responders
- Mass casualty decontamination showers and tents
- Mass casualty litters and support equipment
- Mass notification systems
- Decision support tools to include hand-held computers
- Incident management software
- New equipment training
- Table-top and field exercise support

The Tier 2 capability package includes Baseline and Tier 1 capabilities and adds the following:

- Fixed chemical detectors for warfare agents and toxic industrial materials and chemicals
- Fixed biological collectors with analysis and identification laboratory support
- Collective protection for one of a kind strategic assets (up to 10,000 square feet)
- Escape masks to permit evacuation of personnel identified to work in collective protection
- Decision Support System

Materiel solutions implementation for IP is largely a function of delivering commercial-off-the-shelf (COTS) and government-off-the-shelf (GOTS) equipment. A critical element for the long-term success of integrating COTS/GOTS solutions is the investment in COTS systems and systems development. The budget recommendation below does not include a recommendation to field Tier 2 capabilities. Nonetheless, DoD should retain the capability to quickly ramp up and deliver Tier 2 capability packages should world events dictate. Modest research and development efforts conducted by JPMG will insure the performance and applicability of future COTS/GOTS integration as well as the future implementation of Tier 2 capabilities. This includes research and development efforts to lower design and implementation risk, operational exercises to determine suitability, and system integration testing to determine system effectiveness. Continuing focus on improving system performance for Tier 2 capabilities is essential to reducing the risk to critical missions during a CBRNE incident. Additionally, a modest equipment testing program can help ensure that the COTS equipments and CBRNE systems perform to manufacturers' specifications.